**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PER. \_\_\_\_\_\_**

**Mitotic Division in Cancer Cells**

An important characteristic of cancer cells is that theyno longer follow their normal timing of mitosis. You may have heard of cancer cells being “runaway” cells which have no controles on their rate of reproduction (division). It is this characteristics that allows some cancer cells to grow and spread quite rapidly. In this activity, you will analyze date to determine the differences in timing of mitosis between normal and cancerouse stomach cells of the chicken.

1. Study the date in the data tables for Normal Chicken Cells. Assume that the total time needed for one nomral mitotic division of these cells is **625** minutes. Calculate, using the formula below, the total time needed for each normal phase of mitosis. Enter the time required for each stage into the proper column of Data Table 1.

2. Repeat step one for the Table for Cancerous Chicken Cells. In the case of cancer cells, however, the total time needed for one mitotic division is only **448** minutes. Enter the time required for each stage into the proper data table.

|  |  |  |
| --- | --- | --- |
| **Stage of Mitosis** | **Total # of Cells** | **Time in Phase (minutes)** |
| **INTERPHASE** | **440** |  |
| **PROPHASE** | **40** |  |
| **METAPHASE** | **8** |  |
| **ANAPHASE** | **2** |  |
| **TELOPHASE** | **10** |  |
| **TOTALS** | **500** | **625** |

**TABLE 1: Mitotic Division of Normal Chicken Stomach Cells and the Amount of Time Spent in Each Phase.**

|  |  |  |
| --- | --- | --- |
| **Stage of Mitosis** | **Total # Of Cells** | **Time In Phase (Minutes)** |
| **INTERPHASE** | **424** |  |
| **PROPHASE** | **50** |  |
| **METAPHASE** | **12** |  |
| **ANAPHASE** | **3** |  |
| **TELOPHASE** | **11** |  |
| **TOTALS** | **500** | **448** |

**TABLE 2: Mitotic Division of Cancerous Chicken Stomach Cells and the Amount of Time Spent in Each Phase.**

**FORMULA TO FIND TIME FOR EACH PHASE**

**NUMBER OF CELLS IN A PHASE\_\_\_\_\_\_ X TOTAL MINUTES**

**TOTAL NUMBER OF CELLS COUNTED**

3. Prepare a bar graph ising the data from both tables (normal and cancerouse). Remember your graphing rules – Titles, axis, key etc. Remember what we said about where on a data table is your independent variable.

**CONCLUSION QUESTIONS:**

1. Compare the data for each phase of the normal chicken cells with the date for each phase of the cancerous chicken cells.

2. Are the percentages for the longest phase for the normal chicken cells and the cancerous chicken cells similar? Explain why or why not.

3. What conclusion can you make about cancerous cells based on the information in the tables and the graph.